

## Remarks

### Status of application

Claims 1, 3-24 and 26-45 were examined and stand rejected in view of prior art. The claims have been amended to further clarify Applicant's invention. This Amendment is filed in conjunction with a Request for Continued Examination (RCE); accordingly, reexamination and reconsideration are respectfully requested.

### The invention

A database system with methodology for automated determination and selection of optimal indexes is described. In one embodiment, for example, in a database system including a database optimizer normally used for generating an access plan for processing a given database query run against the database system, an optimizer-based method of the present invention is claim for recommending database indexes to be created for maximizing system performance, the method comprises steps of: capturing a workload representative of database queries employed during prior database system use; monitoring the database optimizer as it prepares to optimize each of the queries, by recording all potential database physical indexes which do not currently exist in the database and for which the database optimizer searched during a preoptimization phase that occurs prior to access plan generation; creating an initial set of virtual indexes each simulating presence of a class of potential database physical indexes that were recorded during the monitoring step, wherein each the virtual index comprises an in-memory data structure corresponding to a set of potential database physical indexes; computing cost benefits for different subsets of the set of virtual indexes by invoking the database optimizer again for purposes of providing cost estimates for the workload for each such subset, progressively eliminating a fixed percentage of virtual indexes with the lowest expected improvement in the query's estimated cost from consideration until space that would be occupied by the virtual indexes is less than or equal to a user-specified value; and recommending database physical indexes to be created based on those virtual indexes that have favorable estimated cost benefits for the captured workload and have not been eliminated from consideration.

Prior art rejection

*Rejection under 35 U.S.C. 103(a)*

Claims 1, 3-24 and 26-45 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lenzie (US Patent 6,728,720 81) in view of Zilio et al. (US Patent 7,007,006). The Examiner's courtesy of telephonic interview for purposes of discussing an RCE and amendments to the claims for overcoming the art rejection is greatly appreciated. Further to that discussion, Applicant's independent claims 1 and 24 have been amended.

In particular, the amended claims now include claim limitations that clarifies that the database optimizer checks for the presence of certain indexes from prior usage and records all potential indexes that do not currently exist in the database and for which the database optimizer searched during a preoptimization phase that occurs prior to access plan generation. Also, the amendment further clarifies that a fixed percentage of virtual indexes (namely, ones with the lowest expected improvement in the query's estimated cost) are progressively eliminated from consideration until space that would be occupied by the virtual indexes is less than or equal to a user-specified value. Based on discussion with the Examiner, it is understood that the amended claims appears to overcome the prior art by outlining the steps necessary to decide on a virtual index, thus overcoming the present rejection under Section 103. (Applicant of course understands that an updated search will be performed.)

Any dependent claims not explicitly discussed are believed to be allowable by virtue of dependency from Applicant's independent claims, as discussed above.

Conclusion

In view of the foregoing remarks and the amendment to the claims, it is believed that all claims are now in condition for allowance. Hence, it is respectfully requested that the application be passed to issue at an early date.

If for any reason the Examiner feels that a telephone conference would in any way expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at 408 884 1507.

Respectfully submitted,

Date: August 13, 2007

/John A. Smart/

John A. Smart; Reg. No. 34,929  
Attorney of Record

408 884 1507  
815 572 8299 FAX